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Development of electro-hydro automatic parking braking system for automotive system (Article)

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Abstract

View references (19)

A parking brake is an important tool of any automotive system . Conventional parking brake systems requires the driver to manually pull the lever if the brakes are to be applied. To some extent, the vehicle is left without applying the parking brake due to the insensibility, which could make the vehicle in danger if there any gradient of the road and strong wind. The aim of this manuscript is to present an automatic electro-hydro parking braking system which brakes once the vehicle park. This is developed by associating the wheel speed sensors, accelerator proximity sensors, controller, and a linear actuator. This electro-hydro automatic parking braking system automatically brakes the vehicle when it parks. It ensures the vehicle to remain stationary when it is parked and prevents vehicle rollaway or any unwanted movement that might occur. It increases the safety of the vehicle as well as others around it. The linear actuator displacement is controlled in this study by the auto-clamping system when the vehicle park. The model has been tested considering the road gradient 2-25%. The automatic parking braking system requires hydraulic pressure 383.66 kPa to ensure the vehicle park on 25% gradient, which is 11% less than the vehicle to brake from speed of 35 km/h. © BEIESP.

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Linear actuator | Master brake cylinder | Microcontroller | Parking brake | Sensors

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Back to results | 1 of 1

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